

Amendment re:09/788,437

Page 2 of 11

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. Listing of Claims

1. (Currently Amended) A pressure sensor comprising:
 - a substrate;
 - a member having a portion adherent by stiction to a surface of the substrate,
 - means for heating the portion of the member; and
 - means for monitoring a temperature of the portion of the member, the means for monitoring a temperature of the portion of the member controlling an output signal to indicate a pressure of a gas to which the pressure sensor is exposed.
2. (Currently Amended) The pressure sensor of claim 1 wherein at least one of:
 - a surface of the portion of the member in contact with the substrate; and,
 - the surface of the substrate in contact with the portion of the member;has a surface roughness in the range of nanometers to tens of nanometers.
3. (Currently Amended) The pressure sensor of claim 1 wherein the means for heating the portion of the member comprises an electrically conductive pathway passing through the member and a source of electrical current connected to pass electrical current along the conductive pathway.
4. (Currently Amended) The pressure sensor of claim 3 wherein the electrically conductive pathway has a temperature-dependent electrical resistance and the means for monitoring a temperature of the portion of

Amendment re:09/788,437

Page 3 of 11

the member comprises the electrically conductive pathway.

5. (Original) The pressure sensor of claim 3 comprising an electrically insulating layer on a surface of the member.
6. (Original) The pressure sensor of claim 5 wherein the member comprises polysilicon and the electrically insulating layer comprises a layer of silicon dioxide.
7. (Original) The pressure sensor of claim 6 comprising an electrically insulating layer on the surface of the substrate.
8. (Original) The pressure sensor of claim 1 wherein the member comprises a bridge extending between a pair of cantilever members, each of the cantilever members having one end attached to the substrate and another end connected to the bridge.
9. (Original) The pressure sensor of claim 8 wherein the cantilever members are attached to the substrate by a pad and an oxide layer between the pad and the substrate.
10. (Original) The pressure sensor of claim 1 wherein the member has a length in the range of 50 μm to 250 μm and a width in the range of 1 μm to 10 μm .
11. (Currently Amended) ~~The pressure sensor of claim 1~~ A pressure sensor comprising:
a substrate;

Amendment re:09/788,437

Page 4 of 11

a member adherent by stiction to a surface of the substrate,

means for heating the member; and

means for monitoring a temperature of the member, the means for monitoring a temperature of the member controlling an output signal to indicate a pressure of a gas to which the pressure sensor is exposed;

wherein the member comprises a generally linear elongated bridge supported above the substrate at either end, the bridge having a central portion collapsed onto and adhering by stiction to ~~a~~ the surface of the substrate.

12. (Original) The pressure sensor of claim 1 wherein the substrate comprises silicon and the member comprises polysilicon.
13. (Previously Presented) A composite pressure sensor comprising first and second pressure sensors the first and second pressure sensors each comprising:
 - a substrate;
 - a member adherent by stiction to a surface of the substrate,
 - means for heating the member; and
 - means for monitoring a temperature of the member, the means for monitoring a temperature of the member controlling an output signal to indicate a pressure of a gas to which the pressure sensor is exposed;the pressure sensors arranged with first and second resistors in a Wheatstone bridge configuration having first and second output points and first and second input points, the means for monitoring a temperature

Amendment re:09/788,437Page 5 of 11

of the member of the first pressure sensor connected between the first input point and the first output point, the means for monitoring a temperature of the member of the second pressure sensor connected between the second input point and the second output point, the first resistor connected between the first input point and the second output point and the second resistor connected between the second input point and the first output point.

14. (Original) The composite pressure sensor of claim 13 wherein the first and second resistors comprise members substantially the same as the members of the first and second pressure sensors but which are sealed to the surface of the substrate by an oxide layer.
15. (Original) The composite pressure sensor of claim 14 comprising a metallic masking layer covering the members of the first and second resistors.
16. (Original) The pressure sensor of claim 1 wherein the member comprises a material selected from the group consisting of silicon, polysilicon, copper, aluminum and tungsten.
17. (Currently Amended) The pressure sensor of claim 1 wherein the surface of the substrate is patterned with a pattern of plateaus and valleys in its portion under the portion of the member, the member is adherent by stiction to the plateaus, and the member is not in contact with the valleys.

Amendment re:09/788,437Page 6 of 11

18. (Original) The pressure sensor of claim 17 wherein the plateaus and valleys differ in elevation by a distance in the range of 3 nanometers to 20 nanometers.
19. (Original) The pressure sensor of claim 1 wherein the means for monitoring a temperature of the portion of the member comprises a temperature sensor in the substrate and under the member.
20. (Original) The pressure sensor of claim 19 wherein the temperature sensor comprises a p-n junction.
- 21-29 (Cancelled)
30. (Currently Amended) A pressure sensor comprising a substrate, a member having a portion adherent by stiction to a surface of the substrate, a heater located to heat the portion of the member and a temperature sensor located to generate a signal responsive to a temperature of the portion of the member, the signal indicative of a pressure of a gas to which the pressure sensor is exposed.
31. (Currently Amended) The pressure sensor of claim 30 wherein at least one of a surface of the portion of the member in contact with the substrate and a surface of the substrate in contact with the portion of the member has a surface roughness in the range of nanometers to tens of nanometers.
32. (Previously Presented) The pressure sensor of claim 30 wherein the heater comprises an electrically conductive pathway passing through the member and a

Amendment re:09/788,437

Page 7 of 11

source of electrical current connected to pass electrical current along the electrically conductive pathway.

33. (Previously Presented) The pressure sensor of claim 30 wherein the member comprises a bridge extending between a pair of cantilever members, each of the cantilever members having one end attached to the substrate and another end connected to the bridge.
34. (Previously Presented) The pressure sensor of claim 30 wherein the member has a length in the range of 50 μm to 250 μm and a width in the range of 1 μm to 10 μm .
35. (Currently Amended) ~~The pressure sensor of claim 30~~
A pressure sensor comprising a substrate, a member adherent by stiction to a surface of the substrate, a heater located to heat the member and a temperature sensor located to generate a signal responsive to a temperature of the member, the signal indicative of a pressure of a gas to which the pressure sensor is exposed wherein the member comprises a generally linear elongated bridge supported above the substrate at either end, the bridge having a central portion collapsed onto and adhering by stiction to a surface of the substrate.
36. (Previously Presented) The pressure sensor of claim 30 wherein the substrate comprises silicon and the member comprises polysilicon.
37. (Previously Presented) A composite pressure sensor comprising first and second pressure sensors arranged

Amendment re:09/788,437

Page 8 of 11

with first and second resistors in a Wheatstone bridge configuration having first and second output points and first and second input points, each of the pressure sensors comprising a substrate, a member adherent by stiction to a surface of the substrate, a heater located to heat the member and a temperature sensor located to generate a signal responsive to a temperature of the member the signal indicative of a pressure of a gas to which the pressure sensor is exposed the temperature sensor of the first pressure sensor connected between the first input point and the first output point, the temperature sensor of the second pressure sensor connected between the second input point and the second output point, the first resistor connected between the first input point and the second output point and the second resistor connected between the second input point and the first output point.

38. (Previously Presented) The pressure sensor of claim 30 wherein the member comprises a material selected from the group consisting of silicon, polysilicon, copper, aluminum and tungsten.
39. (Currently Amended) The pressure sensor of claim 30 wherein the surface of the substrate is patterned with a pattern of plateaus and valleys in its portion under the portion of the member, the portion of the member is adherent by stiction to the plateaus, and the member is not in contact with the valleys.
40. (Previously Presented) The pressure sensor of claim 30 wherein the temperature sensor is located in the substrate under the member.

Amendment re:09/788,437Page 9 of 11

41-43 (Cancelled)

44. (New) The pressure sensor of claim 1 wherein the member comprises a generally linear elongated bridge supported above the substrate at either end, and the portion of the member comprises a central portion of the bridge collapsed onto and adhering by stiction to the surface of the substrate.
45. (New) The pressure sensor of claim 30 wherein the member comprises a generally linear elongated bridge supported above the substrate at either end and the portion of the member comprises a central portion of the bridge collapsed onto and adhering by stiction to the surface of the substrate.